

What is claimed is:

1. A vehicle electrical system, comprising:

at least one power supply module; and

at least two control modules;

wherein the at least one power supply module is connected to each of the at least two control modules for the purpose of supplying electrical energy;

wherein the at least two control modules are interconnected for the purpose of data exchange;

wherein the at least one power supply module is configured as a smart device and is connected to at least one of the at least two control modules for the purpose of data exchange;

and

wherein the at least one power supply module is configured to accomplish at least one of:

in the event of an internal malfunction of a select control module, the power supply module will place the select control module into a cut-off state by disconnecting the select control module from the electrical energy provided by the power supply; and

in the event of an interrupted or faulty data exchange with a select control module, the power supply will transform the select control module to a stand-alone operating mode.
2. The vehicle electrical system of claim 1 wherein the detection of an interrupted or faulty data exchange with the select control module is provided by at least one of:

at least one other control module; and

the power supply module.

3. The vehicle electrical system of claim 1 wherein the at least one power supply module comprises a plurality of power supply modules configured so that in the event of an interrupted or faulty data exchange with the select control module, at least one of the power supply modules switches the select control module to the stand-alone operating mode.

4. The vehicle electrical system of claim 1 wherein at least one control module is configured so that in the event of an interrupted or faulty data exchange with the select control module, at least one control module transforms the select control module into the stand-alone operating mode.

5. The vehicle electrical system of claim 1 wherein each control module is configured so that in the event of an interrupted or faulty data exchange, each control module transforms itself to the stand-alone operating mode.

6. The vehicle electrical system of claim 1 wherein each control module is configured so that they may be transformed into the cut-off state from the stand-alone operating mode.

7. The vehicle electrical system of claim 6 wherein the transformation of a select control module from the stand-alone operating mode into the cut-off state is implemented based on a majority decision of at least one of:

at least one other control module; and

the power supply module;

wherein the select control module being in the stand-alone operating mode represents a single, faulty control module of an otherwise fault-free, functionally associated group of control modules.

8. The vehicle electrical system of claim 1, comprising at least two power supply modules, wherein the power supply modules and the control modules are configured so that disconnecting the select control module from the electrical energy supply occurs only if at least two of the power supply modules independently disconnect the select control module from the electrical energy supply.

9. The smart power supply module of claim 1 wherein the power supply module is configured to be capable of detecting an interrupted or faulty data exchange with at least one of the connected control modules and, upon detecting the interrupted or faulty data exchange, disconnecting the select control module from the source of electrical energy.

10. The control module of claim 1 wherein the control module is configured so that in the event of an interrupted or faulty data exchange, the control module will transform itself into the stand-alone operating mode.

11. A vehicle electrical system, comprising:

at least one power supply module; and

at least two control modules;

wherein the at least one power supply module is connected to each of the at least two control modules for the purpose of supplying electrical energy;

wherein the at least two control modules are interconnected for the purpose of data exchange;

wherein the at least one power supply module is configured as a smart device and is connected to at least one of the at least two control modules for the purpose of data exchange;

and

wherein the at least one power supply module is configured to accomplish at least one of:

in the event of an internal malfunction of a select control module, the power supply module will place the select control module into a cut-off state by disconnecting the select control module from the electrical energy provided by the power supply;

in the event of an interrupted or faulty data exchange with a select control module, the power supply will transform the select control module to a stand-alone operating mode;

wherein the detection of an interrupted or faulty data exchange with the select control module is provided by at least one of: at least one other control module, and the power supply module; and

wherein at least one control module is configured so that in the event of a malfunction in the data exchange with the select control module, at least one control module transforms the select control module into the stand-alone operating mode.

12. The vehicle electrical system of 11 wherein each control module is configured so that in the event of an interrupted or faulty data exchange, each control module transforms itself to the stand-alone operating mode.

13. The vehicle electrical system of 11 wherein each control module is configured so that they may be transformed into the cut-off state from the stand-alone operating mode.

14. The vehicle electrical system of claim 13 wherein the transformation of a select control module from the stand-alone operating mode into the cut-off state is implemented based on a majority decision of at least one of:

at least one other control module; and

the power supply modules;

wherein the select control module being in the stand-alone operating mode represents a single, faulty control module of an otherwise fault-free, functionally associated group of control modules.

15. A vehicle electrical system, comprising:

at least two power supply modules; and

at least two control modules;

wherein the at least two power supply modules are connected to each of the at least two control modules for the purpose of supplying electrical energy;

wherein the at least two control modules are interconnected for the purpose of data exchange;

wherein the at least two power supply modules are configured as smart devices and are connected to at least one of the at least two control modules for the purpose of data exchange; and

wherein the at least two power supply modules are configured to accomplish at least one of:

in the event of an internal malfunction of a select control module, the power supply modules will place the select control module into a cut-off state by disconnecting the select control module from the electrical energy provided by the power supplies, and

in the event of an interrupted or faulty data exchange with a select control module, the power supply modules will transform the select control module to a stand-alone operating mode;

wherein the detection of an interrupted or faulty data exchange with the select control module is provided by at least one of:

at least one other control module; and

the power supply module; and

wherein the power supply modules and the control modules are configured so that disconnecting the select control module from the electrical energy supply occurs only if at least two of the power supply modules independently disconnect the select control module from the electrical energy supply.

16. The vehicle electrical system of claim 15 wherein the at least two power supply modules are configured so that in the event of an interrupted or faulty data exchange with the select control module, at least one of the power supply modules switches the select control module to the stand-alone operating mode.

17. The vehicle electrical system of claim 15 wherein at least one control module is configured so that in the event of an interrupted or faulty data exchange with the select control module, at least one control module transforms the select control module into the stand-alone operating mode.

18. The vehicle electrical system of claim 1 wherein each control module is configured so that in the event of an interrupted or faulty data exchange, each control module transforms itself to the stand-alone operating mode.

19. The vehicle electrical system of claim 15 wherein each control module is configured so that they may be transformed into the cut-off state from the stand-alone operating mode.

20. The vehicle electrical system of claim 19 wherein the transformation of a select control module from the stand-alone operating mode into the cut-off state is implemented based on a majority decision of at least one of:

at least one other control module; and

the power supply modules;

wherein the select control module being in the stand-alone operating mode represents a single, faulty control module of an otherwise fault-free, functionally associated group of control modules.

21. The smart power supply control module of claim 15 wherein the power supply module is configured to be capable of detecting an interrupted or faulty data exchange with at least one select connected control module and, upon detecting an interrupted or faulty data exchange, disconnecting the select control module from the source of electrical energy.

22. The control module of claim 15 wherein the control module is configured so that in the event of an interrupted or faulty data exchange, the control module will transform itself into the stand-alone operating mode.

23. A vehicle electrical system, comprising:
at least two power supply modules; and
at least two control modules;
wherein the at least two power supply modules are connected to each of the at least two control modules for the purpose of supplying electrical energy;
wherein the at least two control modules are interconnected for the purpose of data exchange;
wherein the at least two power supply modules are configured as smart devices and are connected to at least one of the at least two control modules for the purpose of data exchange;
and

wherein the at least two power supply modules are configured to accomplish at least one of:

in the event of an internal malfunction of a select control module, the power supply modules will place the select control module into a cut-off state by disconnecting the select control module from the electrical energy provided by the power supply, and

in the event of an interrupted or faulty data exchange with a select control module, the power supply modules will transform the select control module to a stand-alone operating mode;

wherein the power supply modules and the control modules are configured so that disconnecting the select control module from the electrical energy supply occurs only if at least two of the power supply modules independently disconnect the select control module from the electrical energy supply;

wherein the detection of an interrupted or faulty data exchange with the select control module is provided by at least one of:

at least one other control module, and

at least one of the power supply modules;

wherein at least one control module is configured so that in the event of an interrupted or faulty data exchange with the select control module, at least one other control module transforms the select control module into the stand-alone operating mode; and

wherein each control module is configured so that in the event of an interrupted or faulty data exchange, each control module transforms itself to the stand-alone operating mode.

24. The vehicle electrical system of claim 23 wherein each control module is configured so that they may be transformed into the cut-off state from the stand-alone operating mode.

25. The vehicle electrical system of claim 24 wherein the transformation of the select control module from the stand-alone operating mode into the cut off state is implemented based on a majority decision of at least one of:

at least one other control module; and

the power supply modules;

wherein the select control module being in the stand-alone operating mode represents a single, faulty control module of an otherwise fault-free, functionally associated group of control modules.